

**HYDROGEOCHEMICAL COMPOSITION AND MASS BALANCE MODEL OF FURMAN LAKE,
GREENVILLE, SOUTH CAROLINA**

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A 29-acre lake on the Furman University campus is undergoing changes in water-quality and biota as a result of sediment accumulation and the organic contributions of the numerous water-fowl that are living on or passing through the lake. Furman Lake is shallow, with a maximum depth of 20 feet, and therefore is considered a holomictic lake with continuous mixing. Inflow to the lake occurs via two inlet streams and outflow through a single stream through a dam. The lake level fluctuates little, and therefore is considered to be steady-state with respect to water content. Water quality parameters measured include pH, Eh, dissolved oxygen, major cations and anions, and selected trace metals. Water samples were collected from each inlet stream, the outlet streams, and six locations down the length of the lake. In the lake, samples were collected at near surface, mid-depth, and near bottom at each of the six locations. The

data were used to construct a steady-state mass balance box model, determine the replacement time of dissolved solutes, and an estimate of the burial rate in sediment of the solutes.